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IFW
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

Applicant	:	Leskela et al.
Appl. No.	:	09/787,062
Filed	:	June 28, 2001
For	:	METHOD FOR GROWING OXIDE THIN FILMS CONTAINING BARIUM AND STRONTIUM
Examiner	:	Matthew A. Anderson
Group Art Unit	:	1765

ON APPEAL TO THE BOARD OF PATENT APPEALS AND INTERFERENCES
REPLY BRIEF

Dear Sir:

This Reply is responsive to the Examiner's Answer dated August 19, 2004 and relates to an appeal to the Board of Patent Appeals and Interferences of the Final Rejection set forth in an Office Action mailed on January 30, 2004 in the above-captioned application. An Oral Hearing is requested in a separate paper submitted herewith.

I. ISSUES BEFORE THE BOARD

This appeal turns on whether Claims 1-39 are properly rejected under 35 U.S.C. § 103(a) as being unpatentable over DiMeo (U.S. Patent No. 5,972,430) in view of Kirlin (U.S. Patent No. 5,453,494) and/or Maiti (U.S. Patent No. 6,020,024).

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II. APPELLANT'S REPLY

The Examiner's answer shows either that the Examiner does not understand the operation of atomic layer deposition (ALD) or that he does not understand the law of obviousness.

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With respect to the second point, the case law clearly indicates that the Examiner must show that the references teach combining elements in the manner of the claimed invention. Merely having all the elements in the prior art is not sufficient. Additionally, it is clear that the prior art must not only contain the suggestion for the combination but also a reasonable expectation of success.

A. The Prior Art Provides No Motivation Or Suggestion To Make The Claimed Combination

The essence of the Examiner's rejections is that there are connections among the references (DiMeo et al. makes reference to both ALD and CVD); that the recited precursors are present among the references (Kirlin et al. is incorporated in DiMeo et al. and also teaches the use of the recited precursors for CVD); and that Maiti et al. discloses deposition of the recited material (BST) by ALD. In essence, this teaches no more than that the references may be combinable (not teach that the skilled artisan would have had any reason to combine them) and that together the references include each and every element of the claims. "If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, by rejecting patents solely by finding prior art corollaries for the claimed elements would permit an Examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention." *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1457 (Fed. Cir. 1998).

Furthermore, it is not enough even to show a reason to combine the references if the Examiner has not shown a reason to combine the elements in the manner claimed. "For a prior art reference to anticipate in terms of 35 U.S.C. § 102, every element of the claimed invention must be identically shown in a single reference. These elements must be arranged as in the claim under review ..." *In re Bond*, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). When combining these references, the Examiner shows no reason why the skilled artisan practicing the ALD process of Maiti et al. would stray from the precursors that Maiti et al. themselves taught. There is no teaching or suggestion anywhere in the art, nor does the Examiner even attempt to show such a suggestion, to substitute the precursors from Kirlin et al. (or from DiMeo et al., which incorporates Kirlin et al.). Rather, it is clear that the Examiner's only reason for doing so is that the Examiner is employing the present claims as his blueprint.

B. The Prior Art Does Not Provide A Reasonable Expectation Of Success In The Claimed Combination

In the present situation, at the time of the invention there was also no expectation for success of the claimed invention. There is simply no indication in the references of record that the recited precursors could operate in the manner claimed. In other words, there is no indication that cyclopentadienyl precursors might operate in a self-limiting fashion. The skilled artisan will understand that the recited features of atomic layer deposition and self-limited or self-saturating reactions require precursors to adsorb on the substrate in a manner that does not allow further adsorption once all the reactive sites are saturated. This mechanism of reaction is clearly recited in the claims, and there is a conspicuous absence of a teaching in the prior art that cyclopentadienyl precursors (1) can operate or (2) should operate in this manner. The Examiner needs to show both from the prior art.

C. Deposition of an Atomic Layer is Not Equivalent to Atomic Layer Deposition

In his Answer, the Examiner appears to argue that DiMeo et al. does, in fact, teach atomic layer deposition because an atomic layer of material may be deposited in one embodiment (see, for example, page 9, second and third full paragraphs). Applicants note that the Examiner's repeated statement in his Answer that DiMeo et al. teaches deposition of layers at the atomic level is inapposite: Applicants are not claiming depositing an atomic layer; rather, Applicants are claiming depositing by atomic layer deposition. Nor do Applicants rely solely on the term of art "atomic layer deposition." Rather, Applicants have clearly recited deposition in a self-limiting or self-saturating manner. Therefore, the statements of the Examiner that a single atomic layer may be deposited in each of DiMeo's cycles is completely irrelevant. The Examiner can not simply ignore the self-limiting and self-saturating features of the claimed atomic layer deposition reactions.

III. CONCLUSIONS

Applicants submit that the Examiner has provided no teaching or suggestion that would have motivated the skilled artisan to use the precursors disclosed in DiMeo et al. in ALE processes as claimed. Further, the Examiner has provided no evidence that the skilled artisan

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would have had a reasonable expectation of success in such use. Thus, Applicants submit that the rejections under 35 U.S.C. § 103 should be withdrawn and that Claims 1-39 should be allowed.

Respectfully submitted,

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Dated: October 22, 2004

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